



Recent hard winters in the UK have tested *Agave* hardiness

Agave: winter survival

MANY SPECIES OF *Agave* have been introduced and grown outside in UK gardens in recent decades. Nearly eight years ago I discussed growing *Agave* as garden plants in these pages (Spracklin 2007). I highlighted species that either had a proven track record for hardiness or untried species that had potential for hardiness given their provenance.

At the time of writing that article the UK had been experiencing milder-than-average winters for several consecutive years. This had perhaps instilled an aura of invincibility about our gardens. Like many adventurous gardeners, I had dropped my guard and

Three hard winters in the UK have tested *Agave* to the limit.

Following a survey of more than 100 growers, PAUL SPRACKLIN reveals the 10 hardiest species

made recklessly tender planting choices with each passing mild winter.

Winter woes

The winter of 2009–10 brought the overdue reality check. In common with much of the country, extremely low temperatures in my locality of southeast Essex arrived in early December. I had week-long periods during which temperatures failed to creep above freezing, day or night, and, worse still, up to 60cm of wet slushy snow which did not clear until the end of March.

April 2010 still holds for me painful memories of hiring a large skip into which the corpses of my decaying succulent plants were laid to rest – about two-thirds of my outdoor succulent collection resembled boiled cabbage, far too

many and far too smelly to go onto the compost heap.

The winter of 2010–11 was little better, although the heavy losses from the year before meant fewer casualties. And again, the winter of 2011–12 saw cold returning. The term ‘global warming’ was quietly altered to ‘climate change’ to fit the wider perception of extreme weather events, and there were even nervous whispers about a returning ice age. All things considered, it was not great period of winter weather for succulent plants!

Lessons learnt

Of course there are always positives to be gained from negatives. The snow-laden clouds bore a silver lining – a valuable opportunity to discover which *Agave* species could actually survive these inhospitable winters. These can be considered more reliable candidates for wider, long term planting rather than the preserve of favoured coastal locations. It was also an opportunity to gain insights into what measures gardeners might take to help the plants make it through our winters.

Online survey

Although acutely familiar with how plants in my own garden performed, I wanted to visualize a bigger picture. I therefore created an online survey in 2014 (see box, p15). I publicized it via internet discussion groups associated with gardening, inviting people who were growing agaves outside to take part. The survey comprised four main sections:

- Species grown: a choice from a list of 50 of what I considered to be the most likely species to be grown. This asked which temperature range they were being grown in and whether or not the plants received any protection.

- Growing conditions: whether in raised beds, soil medium, exposure to full sun, air movement, aspect.

- Cultivation: how often, if at all, the plants were watered, fed or protected.

- Locality: open-ended questions regarding location, winter temperatures and average rainfall.

Results from survey

The response was greater than I had hoped, with 113 people completing the survey. Gratifyingly, many of the results have been rather unexpected, with a greater range of species being grown than I would have imagined, and a greater number of people growing some of the more unusual species.

Surprisingly, a number of species that I would have automatically flagged as being good garden plants, such as *Agave gentryi*, *A. havardiana*, *A. mitis*, *A. striata* and *A. univittata*, did not feature very highly in the results. They are evidently not widely grown, despite thriving in my own and others’ gardens.

I was a little surprised to see that two-thirds of us water our agaves and more than one-third feed them. When it comes to protection, 56% do not protect at all, and the

remainder are split between either all-winter covering or temporary covering. Looking at the figures a little more deeply, it seems most of the unprotected agaves are *Agave americana*. Those trying more unusual species are inclined to give them protection of some sort.

Perhaps inevitably, with hindsight, the open questions proved the least successful. Links or patterns between rainfall, winter temperatures and locality were impossible to determine from the results.

Top 10 species in gardens

Based on the survey results, these are the hardest *Agave* species grown outside. Species are listed in order of popularity.

1 *Agave americana*

Agave americana remains overwhelmingly the most popular species, especially, it seems, by those who want just one *Agave* in the garden. It is the species that defines the genus, both taxonomically and evocatively, and the easiest to find for sale.

It lends an exotic air to a dry border and most clones are tolerant of a wide range of cultural conditions. Many would say too tolerant – in dry-climate regions around the world it has become a pernicious weed, swamping thousands of hectares. However, where it can be grown in the UK it is usually well-behaved, with the caveat that most selections can grow extremely large with a propensity towards offsetting profusely – be warned!

There are several yellow- or cream-variegated cultivars of varying hardness with stripes and bands at the leaf margin (‘Variegata’ and ‘Marginata’), leaf centre (‘Mediopicta’ and ‘Mediopicta Alba’) or streaked throughout (‘Striata’). However, there is a lot to be said ➤



Agave americana

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for the simple, solid presence of the plain species, some selections of which are more compact and a vivid silver-grey in colour. It can survive to -12°C if dry.

2 *Agave filifera*

It was something of a surprise for me to see this unusual species so high in the list. *Agave filifera* does not conform to most peoples' image of an *Agave*. It forms a reasonably small but dense rosette of incurved, mid green leaves that are not very succulent and do not have marginal teeth. Instead, the leaves have curly, thread-like filaments that peel away from the edge. Add its striking, white 'bud print' marks on the leaf surface and the effect is quite charming. A sharp terminal spine quickly reminds careless handlers of its heritage, however.

Although happy in a well-drained border, *A. filifera* excels if planted vertically in a drystone wall. It can survive to -15°C if dry.

There are related and similar-looking species which are much confused in the nursery trade, such as *A. multiflora* and *A. schidigera*, but all seem equally easy to grow. Some selections of each will produce offsets, others remain solitary.

3 *Agave montana*

This species is a stupendously beautiful plant, and proving to be one of the very best for outdoor cultivation in the UK. It forms a chunky and imposing specimen that can reach 1.5m in diameter. The solitary rosettes are densely packed with wide, impressively spined leaves giving an overall effect of a houseleek on steroids. As with most agaves, individual clones vary considerably, yet all show similar characteristics – glossy, deep green leaves with a certain degree of white powdery patina, deeply impressed 'bud prints',





Agave bracteosa

cupped, with the tips and outer edges of the upper part of the leaf often rolling backward like rose petals. The upper surface is sometimes slightly channelled, leading to the common name of whale-tongue agave. The leaf margins are varyingly armed with black teeth and there is a pronounced, black, terminal spine.

Again, although not necessary, a little irrigation during dry weather is appreciated by the plant. It has survived down to -12°C , and could perhaps take lower temperatures.

5 *Agave bracteosa*

Certainly the most unusual and least agave-like species on the list, *A. bracteosa* makes an endearingly scruffy, 80cm-wide rosette of narrow, wiggly, apple-green leaves. These have no marginal teeth and no terminal spine to speak of. The central few leaves clasp each other tightly and are held upright, and the tips are peeled back, almost like pursed lips. Plants remain solitary for some years, eventually producing offsets both underground and also, as it matures, in the leaf axils.

This is one of the most adaptable agaves to UK conditions, which is remarkable given that it is found, in habitat, wedged into tiny, parched cracks in vertical, limestone cliff-faces. It is therefore a perfect candidate for planting into a dry-stone wall. This species has survived down to -12°C in middle England.

6 *Agave parrasana*

This is another chunky plant, showing its affinity to *A. montana* and *A. ovatifolia*. But overall it is much smaller, reaching perhaps 80cm in diameter at maturity. It makes a dense rosette of broad leaves, usually pewter grey and often with a dusting of silvery patina. Pronounced marginal teeth are



Agave parrasana

and colourful reddish-brown teeth and terminal spines.

In the UK climate *A. montana* seems relatively fast-growing. It apparently performs far better in the UK than in hotter regions of Europe and the US, attesting to its montane provenance. During the growing season this species not only tolerates, but appreciates, extra water, and it is one of the few species that can continue to grow throughout winter. It can survive to -15°C or lower, if dry.

4 *Agave ovatifolia*

Something of a newcomer when I wrote the first article, *A. ovatifolia* has demonstrated its hardiness over the past few years. Fortunately, it is one of the most dramatically beautiful agaves that it is possible to grow outdoors, space allowing. A chunky, imposing plant, it has ghostly, silver rosettes that can eventually reach 2m across, although plants in the UK are too young to have achieved those proportions. The leaves are remarkably broad,

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usually a strong feature, which results in attractive, strong 'bud print' marks. Some selections remain solitary whereas others will offset generously.

In the UK it completes its lifecycle in around 20 years. I know of a specimen that was grown outdoors in a Surrey garden that reached this age and flowered, yet still remained compact. The species survives down to -10°C when dry.

7 *Agave parryi* var. *parryi*

Agave parryi var. *parryi* is part of an extremely wide complex of plants. In Europe, at least, there is much confusion, with subspecific and varietal names often being misapplied. Typically, this variety forms a dense, ball-like rosette of broad, blue-grey leaves held in the form of a giant globe artichoke around 90cm in diameter. The leaf width, colour and spination are all variable, but the best selections are among the hardiest and most beautiful agaves it is possible to grow outdoors in the UK.

Once established it will produce suckers, sometimes popping up 1m away but easily removed. In fact, obtaining such a young plant from a tried and tested parent is the surest way of finding a good, hardy clone from such a variable group. Some will survive -15°C or lower.



Agave parryi

8 *Agave salmiana*

This is another widely grown and unusually variable species. Some selections of this species can only resist the lightest of frosts – the popular and beautiful *A. salmiana* var. *ferox* being sadly one of these. Sometimes large, hardy selections of the species are available, in which case allow plenty of space as these can reach 2.5m in diameter. However, the best garden selections appear to be of the relatively compact *A. salmiana* subsp. *crassispinia*, sometimes listed under the synonym *A. coarctata*. These grow into a muscular looking, 1.5m rosette of thick, dark grey-green, incurving leaves, often banded in

pale grey and sometimes slightly channelled. The marginal teeth are not very pronounced. The hardiest selections can, if dry, survive down to -10°C .

9 *Agave victoriae-reginae*

I was surprised to see this in the top ten. With its beautiful looks and compact habit, lending itself perfectly to pot culture, *A. victoriae-reginae* has always been a popular greenhouse plant. An ability to survive on very little water allows it to be overwintered under cold glass very easily.

Individuals vary considerably but, typically, grow into a dense rosette of short, stout, rigid, angled leaves,



Agave victoriae-reginae



Agave asperrima x *A. nickelsiae*



Agave salmiana subsp. *crassispina*

each with vivid white markings. There are no marginal teeth but a short, sharp terminal spine that can be brown or black. These leaves are curved inwards giving an overall effect to the plant that, when viewed from above, is reminiscent of the central boss of a sunflower.

It can be grown to perfection if planted into a vertical stone wall. In the ground it needs to be kept as dry as possible during winter, in which case it can survive down to -12°C.

10 *Agave asperrima* x *A. nickelsiae*

This hybrid between *A. asperrima* (syn. *A. scabra*) and *A. nickelsiae* occurs naturally in the wild. Two competing botanical names have been proposed for it, *A. x nigra* and *A. x saltilloensis*, but neither has been validly published yet. Selections of the hybrid are listed under the cultivar names 'Sharkskin' and 'Sharkskin Shoes'. It seems blessed

with hybrid vigour, being both hardier and more adaptable than either parent.

As with many hybrids, this is a variable plant but the most attractive selections show exceptional beauty with broad, open rosettes of chunky, angular, pewter-grey leaves dramatically edged and tipped with black. Some have prominent marginal teeth, others none at all. The largest selections can reach 1m in diameter, others remain much smaller.

It has a simple form that is a pleasing contrast to most *Agave* species and, if kept dry, can withstand -10°C or perhaps lower.

Cultivation

The survey results reveal no huge surprises when it comes to cultivation. Ideally, plant agaves in a south-facing, open, sunny site in a raised bed of a freely draining soil medium with unimpaired air movement. Many species, in particular *A. bracteosa*, *A. filifera* and *Agave victoriae-reginae*, benefit from being planted vertically in drystone walls, or similar structures, to mimic their cliff-face habitats. Although not entirely necessary, a little extra water and feed during the growing season helps plants establish better.

Most species will benefit from overhead protection during winter. Rail services in the UK were much derided when they blamed 'the wrong type of snow' for transport failures during recent cold winters, but they actually hit the nail on the head as far as growing succulent plants in the UK is concerned. We rarely get a light, powdery, insulating layer of snow, just heavy, wet, slushy stuff that, when allowed to settle in the crowns, causes insidious and irreparable damage to rosette-forming succulents. To protect agaves, a cloche or 'pop-up' greenhouse is ideal. Even the simple expediency of a sheet of fleece or old blanket at the onset of snow, removed when the weather system had passed, can make the difference between life and death.

Conclusion

Agaves are remarkably undemanding as garden plants, and worthy of wider consideration, especially in drier regions of the UK in an exotic garden context. Their robust and architectural presence gives real structure to a dry garden or border, especially when combined with other, large, arid-zone plants such as *Yucca*, *Dasyliirion* and *Nolina*.

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AGAVE SURVEY

The survey is still live and can be accessed here: www.smartsurvey.co.uk/s/125287GNXIH. I would like more responses and I hope to update readers with further results in the future.